

## IN THE CLAIMS

1           1. (Currently Amended) A method for designing a system on a target device utilizing  
2     programmable logic devices (PLDs) with an electronic automation design tool (EDA),  
3     comprising:  
4           having the EDA tool determine a first location on the PLD to place a user defined logic  
5     ~~region~~generating options for utilizing resources on the PLDs in response to user specified  
6     constraints for placement of the user defined logic region; and  
7           having the EDA tool determine a second location to place the user defined logic region,  
8     wherein the second location is determined ~~refining the options for utilizing the resources on the~~  
9     ~~PLDs where the options are~~ independent of the user specified constraints for placement.

1           2. (Currently Amended) The method of Claim 1, wherein having the EDA tool  
2     determine the second location~~refining the options for utilizing the resources~~ is performed in  
3     response to the first location~~options~~ not satisfying design parameters.

1           3. (Currently Amended) The method of Claim 1, wherein having the EDA tool  
2     determine the second location~~refining the options for utilizing the resources~~ is performed in  
3     response to the first location~~options~~ not satisfying the user specified constraints.

1           4. (Currently Amended) The method of Claim 1, wherein having the EDA tool  
2     determine the second location~~refining the options for utilizing the resources~~ is performed in  
3     response to having a threshold number of options generated.

1           5. (Currently Amended) The method of Claim 1, wherein having the EDA tool  
2     determine the second location~~refining the options for utilizing the resources~~ is performed in  
3     response to a triggering event.

1           6. (Currently Amended) The method of Claim 1, further comprising~~wherein generating~~  
2 ~~options for utilizing the resources on the target device comprises~~ determining positions~~locations~~  
3 to place components within user-defined logic regions on the target device.

1           7. (Currently Amended) The method of Claim 6, wherein determining positions to place  
2 the components is an iterative procedure that includes:  
3           selecting positions~~locations~~;  
4           evaluating the positions~~locations~~ with a cost function; and  
5           accepting the positions~~locations~~ if the cost function yields a desired value.

1           8. (Currently Amended) The method of Claim 6, wherein determining the  
2 positions~~refining the options for utilizing the resources on the target device independent of the~~  
3 ~~user specified constraints comprises determining locations to place the components on the target~~  
4 ~~device by removing constraints associated with the user-defined logic regions.~~

1           9. (Currently Amended) The method of Claim 1, further comprising~~wherein generating~~  
2 ~~options for utilizing the resources on the target device comprises~~ determining routing resources  
3 to allocate to user specified signals on the target device in response to user specified routing  
4 constraints.

1           10. (Original) The method of Claim 9, wherein determining routing resources is an  
2 iterative procedure that includes:  
3           selecting routing resources;  
4           determining whether routing resource selections satisfy the user specified routing  
5 constraints; and

1 re-selecting routing resources if the routing resource selections do not satisfy the user  
2 specified routing constraints.

1 11. (Currently Amended) The method of Claim 9, wherein re-selecting the routing  
2 resources refining the options for utilizing the resources on the PLD independent of the user  
3 specified constraints comprises determining routing resources to allocate to the user specified  
4 signals on the PLD by removing the user specified routing constraints.

1 12. (Currently Amended) A method for positioning components of a system onto a  
2 target device utilizing programmable logic devices (PLDs) using an electronic design automation  
3 tool, comprising:

4 having the EDA tool determine a first location on the PLD to place a user defined logic  
5 region in response to user specified constraints for placement of the user defined logic region;

6 determining whether the user specified constraint is a soft constraint in response to the  
7 system not satisfying timing; and

8 having the EDA tool determine a second location to place the user defined logic region,  
9 wherein the second location is determined independent of the user specified constraints for  
10 placement if the user specified constraint is a soft constraint.

11 ~~determining possible locations to place a user defined logic region on a target device;~~

12 ~~determining possible locations to place a component in response to constraints associated~~  
13 ~~with the user defined logic region; and~~

14 ~~determining possible locations to move the component from the possible locations to~~  
15 ~~place the component where the possible locations to move the component are independent of the~~  
16 ~~constraints associated with the user defined logic region.~~

1           13. (Currently Amended) The method of Claim 12, wherein determining the  
2 ~~first possible~~ locations to place the user defined logic region comprises:  
3           assigning an initial location for the user defined logic region;  
4           moving the user defined logic region to a new location; and  
5           evaluating a cost function associated with the user defined logic region in the new  
6 location.

1           14. (Original) The method of Claim 13, wherein evaluating the cost function comprises:  
2           determining a timing of the system associated with the user defined logic region in the  
3 new location; and  
4           determining routing resources requirements associated with the user defined logic region  
5 in the new location.

1           15. (Currently Amended) The method of Claim 12, ~~further comprising wherein~~  
2 determining possible locations to place ~~the component in the user defined logic region~~  
3 comprises:  
4           assigning an initial location for the component in the user defined logic region; and  
5           evaluating a cost function as the user defined logic region and the component are moved.

1           16. (Currently Amended) The method of Claim 152, ~~further comprising wherein~~  
2 determining possible locations to move the component from the possible locations to place the  
3 component independent of the constraints associated with the user defined logic region-is  
4 ~~performed in response to the possible locations to place the user defined logic region and the~~  
5 ~~component not satisfying design parameters.~~

1           17. (Currently Amended) The method of Claim 162, wherein determining possible  
2 locations to move the component ~~from the possible locations to place the component independent~~  
3 ~~of the constraints associated with the user defined logic region~~ is performed in response to the  
4 possible locations to ~~place the user defined logic region and the component~~ not satisfying user  
5 specified constraints.

1           18. (Currently Amended) The method of Claim 162, wherein determining possible  
2 locations to move the component ~~from the possible locations to place the component independent~~  
3 ~~of the constraints associated with the user defined logic region~~ is performed in response to  
4 having a threshold number of possible locations determined.

1           19. (Currently Amended) A method for designing a system on programmable logic  
2 devices (PLDs) using an electronic design automation (EDA) tool, comprising:  
3           having the EDA tool determining routing strategies for routing signals on the PLDs in  
4 response to user specified routing constraints that pertain to categories of routing resources to  
5 use; and  
6           having the EDA tool determining additional routing strategies for routing the signals on  
7 the PLDs where the additional routing strategies are independent of the user specified routing  
8 constraints.

1           20. (Original) The method of Claim 19, wherein determining routing strategies for  
2 routing the signals on the PLDs in response to user specified routing constraints comprises:  
3           selecting routing resources for a user specified signal on the PLDs in response to the user  
4 specified routing constraints; and  
5           selecting routing resources for a non-user specified signal on the PLDs without utilizing  
6 the user specified routing constraints.

1           21. (Original) The method of Claim 19, wherein determining additional routing  
2 strategies for routing the signals comprises selecting routing resources for the user specified  
3 signal on the PLDs independent of the user specified routing constraints.

1           22. (Original) The method of Claim 19, wherein determining additional routing  
2 strategies for routing the signals is performed in response to the routing strategies not satisfying  
3 user specified routing constraints.

1           23. (Original) The method of Claim 19, wherein determining additional routing  
2 strategies for routing the signals is performed in response to the routing strategies not satisfying  
3 design parameters.

1           24. (Original) The method of Claim 19, wherein determining additional routing  
2 strategies for routing the signals is performed in response to a threshold number of routing  
3 strategies being determined.

1           25. (Currently Amended) A machine-readable medium having stored thereon sequences  
2 of instructions, the sequences of instructions including instructions which, when executed by a  
3 processor, causes the processor to perform:  
4           determining a first location on a programmable logic device (PLD) to place a user  
5 defined logic region~~generating options for utilizing resources on programmable logic devices~~  
6 ~~(PLDs)~~ in response to user specified constraints for placement of the user defined logic region;  
7 and

8           determining a second location to place the user defined logic region wherein the second  
9 location is determined~~refining the options for utilizing the resources on the PLD where the~~  
10 ~~options are~~ independent of the user specified constraints for placement.

1           26. (Currently Amended) The machine-readable medium of Claim 25, wherein  
2 determining the second location~~refining the options for utilizing the resources~~ is performed in  
3 response to the first location~~options~~ not satisfying design parameters.

1           27. (Currently Amended) The machine-readable medium of Claim 25, wherein  
2 determining the second location~~refining the options for utilizing the resources~~ is performed in  
3 response to the first location~~options~~ not satisfying the user specified constraints.

1           28. (Currently Amended) The machine-readable medium of Claim 25, wherein  
2 determining the second location~~refining the options for utilizing the resources~~ is performed in  
3 response to having a threshold number of first locations determined~~options generated~~.

1           29. (Currently Amended) The machine-readable medium of Claim 25, wherein  
2 determining the second location~~refining the options for utilizing the resources~~ is performed in  
3 response to a triggering event.

1           30. (Currently Amended) The machine-readable medium of Claim 25, further  
2 comprising~~wherein generating options for utilizing the resources on the target device comprises~~  
3 determining locations to place components within user-defined logic regions on the target device.

1           31. (Currently Amended) The machine-readable medium of Claim 30, further  
2 comprising~~wherein refining the options for utilizing the resources on the target device by~~

3 ~~ignoring the user specified constraints comprises~~ determining locations to place the components  
4 on the target device by removing constraints associated with the user-defined logic regions.

1 32. (Currently Amended) The machine-readable medium of Claim 25, further  
2 comprising~~wherein generating options for utilizing the resources on the target device comprises~~  
3 determining routing resources to allocate to user specified signals on the target device in  
4 response to user specified routing constraints.

1 33. (Currently Amended) The machine-readable medium of Claim 32, further  
2 comprising~~wherein refining the options for utilizing the resources on the PLD by ignoring the~~  
3 ~~user specified constraints comprises determining routing resources to allocate to the user~~  
4 ~~specified signals on the PLD by removing the user specified routing constraints.~~